



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/276,346	03/25/1999	SENTHIL K. VISWANATHAN	33361-00026U	1967

23990 7590 11/05/2003

DOCKET CLERK
P.O. DRAWER 800889
DALLAS, TX 75380

EXAMINER

HO, CHUONG T


ART UNIT	PAPER NUMBER
----------	--------------

2664

DATE MAILED: 11/05/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/276,346	Applicant(s) Senthil K. Viswanathan et al.	
	Examiner Ho	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 5, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14-20, and 23 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-20, and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other: |

Art Unit: 2664

1. The amendment filed 9/5/03 have been entered and made of record.
2. Applicant's amendment filed 09/05/03 with respect to claims 1-11, 14-20, 23 have been considered but are moot in view of the new ground(s) of rejection.
3. Claims 1-11, 14-20, 23 are pending.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 10-11, 15-19, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGill (U.S. Patent No. 5,436,886) in view of Sakamoto et al. (U.S. Patent No. 6,075,767).

In the claim 1, McGill teaches the invention is directed to an ATM switch of dual plane operation for exchanging cells among a plurality of bidirectional ports through a first and second switch plane. Each of the plurality of bidirectional ports is connected to a plurality of line-cards to receive the cells therefrom and transmit the cells thereto. The ATM switch comprises a first and a second switch fabric connected to the plurality of bidirectional ports for transferring the cells among bidirectional ports. The first switch fabric is in the first switch plane and the second switch fabric is in the second switch plane; comprising:

- ♦ working circuitry (working plane, figure 3) configured to receive a first stream of communication data (see col. 4, lines 55-60);

Art Unit: 2664

- ◆ protection circuitry (protection plane, figure 3) configured to receive a second stream of communication data, the second stream being identical (identical traffic, see col.76, lines 19-20) to the first stream, the protection circuitry and the working circuitry being functionally identical and synchronized to each other (see figure 9, col. 7, lines 20-25, col. 6, lines 13-21).

However, McGill does not disclose multiple input streams to the same input port of a single switch fabric.

Sakamoto et al. discloses an ATM handler 11 accommodating the transmission paths in the redundant system. Numeral 1 (1-1 to 1-n) indicate line interface cards (working circuitry, protection circuitry) each including a line interface circuit 15. In associating with the duplicated transmission paths, for a set or pair of two line interface circuits associated a working path and a protection path, a stream of cells from either one pertinent transmission path is delivered by selector 9 (9-1 to 9-j) (cross point switch) disposed on a selector card 3 to the ATM switch 2 (NxN switch fabric). In subsequent description, of the two transmission paths including working and protection paths, the paths selected by the selector 9 (cross point switch) is called an active path or system and the remaining one thereof is called a standby path. (see figures 4, 17, col. 2, lines 5-18); comprising:

- ◆ an NXN switch fabric (ATM SW 2) having N input port and N output ports, wherein each of N input ports may be connected to any one of the N output ports (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28);

Art Unit: 2664

- ◆ a first cross point switch (selector card) having N input ports and N output ports capable of receiving the processed first stream and the processed second stream, wherein the first cross point switch (selector card) couples the process first stream to a first input port of the NxN switch fabric (ATM SW 2) in a first configuration and couples the processed second stream to the first input port in place of the processed first stream in a second configuration upon detection of an error condition in at least one of the working circuitry and the first stream of communication data (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify McGill's system with the teaching of Sakamoto to couple multiple input streams to the same input port of a single switch fabric in order to protect network connections from failure. Therefore, the combined system would have been enable ATM networks for assuring quality of service and regulating traffic flow and congestion.

6. In the claim 2, McGill discloses the communication data is ATM cells data (see col.7, lines 18-25).

7. In the claim 3, McGill discloses the working circuitry (working plane) receives the first stream from an optical signal (fiber optic signal) and the protection circuitry (protection plane) receives the second stream from the optical signal (see col.4, lines 55-65).

8. In the claim 4, McGill discloses the working circuitry (working plane) is implemented on a first circuitry board and the protection circuitry (protection plane) is implemented on a second

Art Unit: 2664

circuitry board, the first circuitry board being separate and distinct from the second circuit board (see figure 3, see col. 4, lines 55-60).

9. In the claim 5, McGill discloses the working circuitry includes a plurality of first ATM channels performing ATM functions on the first stream and the protection circuitry includes a plurality of second ATM channels performing the ATM function on the second stream (see figure 5, col. 4, lines 55-65).

10. In the claim 6, McGill discloses one of the first ATM channels and one of the second ATM channels each include a multiplexer (see col. 5, lines 17-20).

11. In the claim 10, McGill discloses the working circuitry and having a plurality of ports wherein one of the ports accepts the first stream as input to the working circuitry (see figure 5).

In the claim 11, McGill discloses the protection circuitry and having a plurality of ports wherein one of the ports accepts the second stream as input into the protection circuitry (see figure 5).

12. In the claim 11, McGill discloses a second module including the protection circuitry and having a plurality of ports wherein one of the ports accepts the second stream as input into the protection circuitry (see figure 5, col. 4, lines 55-65).

13. In the claim 15, McGill teaches the error condition is a facility error condition (see col. 4, lines 55-65).

14. In the claims 16, 17, 18, McGill teaches the facility error condition includes a disconnected cable (see figure 5, col. 4, lines 55-65).

Art Unit: 2664

15. In the claim 19, McGill teaches the invention is directed to an ATM switch of dual plane operation for exchanging cells among a plurality of bidirectional ports through a first and second switch plane. Each of the plurality of bidirectional ports is connected to a plurality of line-cards to receive the cells therefrom and transmit the cells thereto. The ATM switch comprises a first and a second switch fabric connected to the plurality of bidirectional ports for transferring the cells among bidirectional ports. The first switch fabric is in the first switch plane and the second switch fabric is in the second switch plane; comprising:

- ◆ working circuitry (working plane, figure 3) configured to receive a first stream of communication data (see col. 4, lines 55-60);
- ◆ protection circuitry (protection plane, figure 3) configured to receive a second stream of communication data, the second stream being identical (identical traffic, see col. 7, lines 19-20) to the first stream, the protection circuitry and the working circuitry being functionally identical and synchronized to each other (see figure 9, col. 7, lines 20-25, col. 6, lines 13-21).

However, McGill does not disclose multiple input streams to the same input port of a single switch fabric.

Sakamoto et al. discloses an ATM handler 11 accommodating the transmission paths in the redundant system. Numeral 1 (1-1 to 1-n) indicate line interface cards (working circuitry, protection circuitry) each including a line interface circuit 15. In associating with the duplicated transmission paths, for a set or pair of two line interface circuits associated a working path and a

Art Unit: 2664

protection path, a stream of cells from either one pertinent transmission path is delivered by selector 9 (9-1 to 9-j) (cross point switch) disposed on a selector card 3 to the ATM switch 2 (NxN switch fabric). In subsequent description, of the two transmission paths including working and protection paths, the paths selected by the selector 9 (cross point switch) is called an active path or system and the remaining one thereof is called a standby path. (see figures 4, 17, col. 2, lines 5-18); comprising:

- ◆ an NXN switch fabric (ATM SW 2) having N input port and N output ports, wherein each of N input ports may be connected to any one of the N output ports (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28);
- ◆ a first cross point switch (selector card) having N input ports and N output ports capable of receiving the processed first stream and the processed second stream, wherein the first cross point switch (selector card) couples the process first stream to a first input port of the NxN switch fabric (ATM SW 2) in a first configuration and couples the processed second stream to the first input port in place of the processed first stream in a second configuration upon detection of an error condition in at least one of the working circuitry and the first stream of communication data (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify McGill's system with the teaching of Sakamoto to couple multiple input streams to the same input port of a single switch fabric in order to protect network connections

Art Unit: 2664

from failure. Therefore, the combined system would have been enable ATM networks for assuring quality of service and regulating traffic flow and congestion.

16. In the claim 23, McGill teaches the invention is directed to an ATM switch of dual plane operation for exchanging cells among a plurality of bidirectional ports through a first and second switch plane. Each of the plurality of bidirectional ports is connected to a plurality of line-cards to receive the cells therefrom and transmit the cells thereto. The ATM switch comprises a first and a second switch fabric connected to the plurality of bidirectional ports for transferring the cells among bidirectional ports. The first switch fabric is in the first switch plane and the second switch fabric is in the second switch plane; comprising:

- ◆ a primary input interface (working plane, figure 3) comprising paths capable of receiving N input data stream and output N processed data streams (see col. 4, lines 55-60);
- ◆ a secondary input interface (protection plane, figure 3) comprising N communication paths capable of receiving copies of N input data streams and output N copy data streams corresponding to the N processed data stream output from the primary input interface, wherein the secondary input interface is functionally identical to the primary input interface (identical traffic, see col. 76, lines 19-20)(see figure 9, col. 7, lines 20-25, col. 6, lines 13-21).

However, McGill does not disclose multiple input streams to the same input port of a single switch fabric.

Art Unit: 2664

Sakamoto et al. discloses an ATM handler 11 accommodating the transmission paths in the redundant system. Numeral 1 (1-1 to 1-n) indicate line interface cards (working circuitry, protection circuitry) each including a line interface circuit 15. In associating with the duplicated transmission paths, for a set or pair of two line interface circuits associated a working path and a protection path, a stream of cells from either one pertinent transmission path is delivered by selector 9 (9-1 to 9-j) (cross point switch) disposed on a selector card 3 to the ATM switch 2 (NxN switch fabric). In subsequent description, of the two transmission paths including working and protection paths, the paths selected by the selector 9 (cross point switch) is called an active path or system and the remaining one thereof is called a standby path. (see figures 4, 17, col. 2, lines 5-18); comprising:

- ◆ an NXN switch fabric (ATM SW 2) having N (N=2) input port and N (N=2) output ports, wherein each of N input ports may be connected to any one of the N output ports (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28);
- ◆ a first cross point switch (selector card) having N input ports capable of receiving the N processed data streams from the primary input interface (working line) and second N input ports capable of receiving the N copy data streams from the secondary input interface (protection line) ; wherein the first cross point switch (selector card) couples the N processed data streams from the primary input interface to N inputs ports of the switch fabric in a first configuration, and wherein the first cross point switch is capable of detecting an error in a first processed data stream output from the primary input interface

Art Unit: 2664

and, in response to the detection, switching a corresponding first copy data stream to a first input port of the switch fabric in place of the first processed data stream in which the error was detected. (see figures 4, 5, 17, col. 2, lines 5-67, col. 3, lines 5-15, col. 13, lines 10-28).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify McGill's system with the teaching of Sakamoto to couple multiple input streams to the same input port of a single switch fabric in order to protect network connections from failure. Therefore, the combined system would have been enable ATM networks for assuring quality of service and regulating traffic flow and congestion..

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 7-9, 14, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (McGill-Sakamoto) in view of Akiyoshi (U.S. Patent No. 5,715,237).

In the claims 8, 7, 20, the combined system (McGill-Sakamoto) discloses the limitations as claim 1 above.

Art Unit: 2664

However, the combined system (McGill-Sakamoto) does not disclose one of the first ATM channels and one of the second ATM channels includes a router.

Akiyoshi discloses the invention relates more particularly to a relay system and a digital switching equipment that are capable of preventing a discard the block (packet, frame or ATM cell) of the digital data when relayed (see col. 1, lines 13-15); comprising:

- ◆ one of the first ATM channels and one of the second ATM channels includes a routers (see figure 1, see col. 4, lines 60-67, col. 10, lines 52-67).

Given the teaching of Akiyoshi, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McGill-Sakamoto) to provide one of the first ATM channels and one of the second ATM channels includes a routers in order to place internal code in the ATM cells for routing the cell through the switch fabric . Therefore, the combined system would have been enabled the routers to perform operations on ATM cells stream to prepare them for routing to the external network.

19. In the claim 9, Akiyoshi discloses one of the first ATM channels and one of the second ATM channels includes a user parameter control unit (see col. 35, lines 5-60).

20. In the claim 14, McGill discloses a second cross point switch point configured to receive ATM cells from one of the plurality of output ports of the ATM switch fabric and to direct the received ATM cells to one of an output portion of a second working circuitry and an output portion of a second protection circuitry (see figure 5, col. 4, lines 55-65).

Application Number: 09/276,346

Art Unit: 2664

Conclusion


21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong Ho whose telephone number is (703)306-4529. The examiner can normally be reached on Monday-Friday from 9am to 3pm.

22. If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington, Chin, can be reached on (703)305-4633.

Any inquiry of a general nature or relating to the status of this application or proceeding should be direct to the group receptionist whose telephone number is (703) 305-3900.

CH

Date 10-22-03.



WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600